

## IN FIE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of

Kayvan Najarian et al.

Serial No

: 10/812,726

Filed

: March 30, 2004

For

Methods and Systems for Gene Expression Array Analysis

Examiner

Zhou, Shubo

Art Unit

1631

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

## INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98, Applicants submit herewith on Form PTO/SB/08A a listing of 75 documents known to the Applicants and/or their attorney. Applicants respectfully request consideration of the cited documents and making the same of record in the prosecution of the above-identified application. In so doing, Applicants do not waive any rights to appropriate action to establish patentability over any of the listed documents should they be applied as references against the claims of the present application, or to establish that such references are not prior art. Pursuant to the Notice in the Official Gazette of August 5, 2003, wherein the Patent Office waived the requirements of 37 C.F.R. § 1.98(a)(2)(i), Applicant has not enclosed copies of the U.S. patent references. Copies of foreign or international documents, and non-patent literature (documents 6-75), are enclosed, numbered and labeled for identification purposes.

This statement should not be construed as a representation that more material information does not exist or that a search of the relevant art has been made. It is respectfully requested that the references listed on the attached form PTO/SB/08A be expressly considered by the Examiner, made of record in the application, and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is being submitted prior to the mailing of a first substantive Office Action in this application, and, therefore, no certification or fee is required (37 C.F.R. § 1.97b(3)). However, should any fees be due, the Commissioner is authorized to charge such fees to Deposit Account No. 16-1435. A duplicate of this sheet is attached for that purpose.

Date: Ochber 8, 2004

Respectfully submitted,

Cynthia B. Rothschild Reg. No. 47,040

KILPATRICK STOCKTON LLP 1001 West Fourth Street Winston-Salem, North Carolina 27101-2400 (336) 747-7541 (Phone) (336) 734-2610 (Facsimile)

WINLIB01:1098404.1 46872-293662

**PATENT** 

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PTO/SB/08a (08-03) Approved for use through 07/31/2006. OMB 0651-0031

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Substitute	for form 1449A/R1	5			Complete if Known
	ALA MARKET			Application Number	10/812,726
INFO	RMATION	DIS	CLOSURE	Filing Date	March 30, 2004
STAT	<b>TEMENT B</b>	Y A	PPLICANT	First Named Inventor	Kayvan Najarian et al.
				Art Unit	1631
	(Use as many she	ets as	necessary)	Examiner Name	Zhou, Shubo
Sheet	1	of	8	Attorney Docket Number	46872-293662 (UNCC 02-031)

			U.S. PATENT	OCUMENTS	
Examiner	Cite	Document Number	Publication Date	Name of Patentee or Applicant of	Pages, Columns, Lines, Where Relevant
Initials *	No.1	Number - Kind Code <sup>2</sup> (if known)	MM-DD-YYYY	Cited Document	Passages or Relevant Figures Appear
	1	6,222,093	4/24/2001	Marton et al.	
	2	6,263,287	7/17/2001	Zheng et al.	
	3	6,303,301	10/16/2001	Mack	
	4	6,453,241	9/17/2002	Bassett, Jr. et al.	
	5	6,642,887	11/4/2003	Owechko	
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	FOREIGN PATENT DOCUMENTS							
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Substitute	e for form 144	9B/PTO			Complete if Known
INIEO	DAAAT	ION DIC	CL OCUDE	Application Number	10/812,726
_			CLOSURE	Filing Date	March 30, 2004
STATEMENT BY APPLICANT				First Named Inventor	Kayvan Najarian et al.
				Art Unit	1631
	(Use as m	any sheets as	necessary)	Examiner Name	Zhou, Shubo
Sheet	2	of	8	Attorney Docket Number	46872-293662 (UNCC 02-031)

		NON PATENT LITERATURE DOCUMENTS	
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	6	BACK, A. D. et al. "A First Application of Independent Component Analysis to Extracting Structure From Stock Returns," Int. J. Neural Syst.", 8:5, October, 1997	
	7	BASSETT, D. E. Jr. et al., "Gene Expression Informatics – It's All In Your Mine," Nat Genet. 1999 January 1999, 21 (1 Suppl):51-5	
	8	BLOHM, D. H. et al., "New Developments in Microarray Technology," Curr. Opin. Biotechnol., 12:41-47, 2001	
	9	BRAZMA, A. et al., "Gene Expression Data Analysis," FEBS Lett. 2000 Aug. 25, 480(1):17-24	
	10	CHEUNG, V. G. et al., "Making and Reading Microarrays," Nat Genet. 1999 Jan. 21 (1 Suppl):15-9	
	11	CHO, R. J., et al., "A Genome-Wide Transcriptional Analysis of the Mitotic Cell Cycle," Molecular Cell, 2:65-73, July 1998	
	12	DARVISH, A. et al., A Hierarchical System Identification Technique for Modeling and Analysis of Dynamic Pathways," Bioinformatics, May 2004	
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	14	DEVAUX, F. et al., "Transciptomes, Transcription Activators and Microarrays," FEBS Lett. 2001 Jun 8, 498(2-3):140-4	
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	16	DUGGAN, D. J. et al., "Expression Profiling Using cDNA Microarrays," Nat Genet. 1999 Jan. 21 (1 Suppl):10-4	

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Signature	Considered	l J

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1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute	for form 1449B/P1	го		Complete if Known		
INIEO	INFORMATION DISCLOSURE		CL OCUDE	Application Number	10/812,726	
	<del>-</del> -			Filing Date	March 30, 2004	
STAT	EMENTE	BY A	PPLICANT	First Named Inventor	Kayvan Najarian et al.	
				Art Unit	1631	
	(Use as many si	heets as	necessary)	Examiner Name	Zhou, Shubo	
Sheet	3	of	8	Attorney Docket Number	46872-293662 (UNCC 02-031)	

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²
	17	GREENBERG, S. A., "DNA Microarray Gene Expression Analysis Technology and Its Application to Neurological Disorders," Neurology, 2001 Sept 11; 57(5):755-61	
	18	HACIA, J. G., "Resequencing and Mutational Analysis Using Oligonucleotide Microarrays," Nat Genet. 1999 Jan. 21(1 Suppl):42-7	
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	28	NAJARIAN, K. et al., "Independent Component Analysis and Scoring Function Based on Protein Interactions," Proceedings of IEEE International Conference Intelligent Systems, June 2004	

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	29	PAJUNEN, P. et al., "Non-Linear Blind Source Separation by Self-Organizing Maps," Proc. Int. Conf. On Neural Information Processing, Hong Kong, pp. 1207-1210, 1996	
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	36	TORONEN, P. et al. "Analysis of Gene Expression Data Using Self-Organizing Maps," FEBS Lett. 1999 May 21;451(2):142-6	
_	37	VIGARIO, R. N., "Extraction of Ocular Artefacts from EEG Using Independent Component Analysis," Electroenceph. Clin. Neurophysiol., 103:395-404, 1997	
	38	WU, T. D., "Analysing Gene Expression Date from DNA Microarrays to Identify Candidate Genes," J Pathol. 2001 Sep;195(1):53-65	

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	39	YEUNG, K. Y. et al., "Principal Component Analysis for Clustering Gene Expression Data," Bioinformatics, 2001 Sep;17(9):763-74	
	40	ZIV Bar-Joseph et al., "Comparing the Continuous Representation of Time- Series Expression Profiles to Identify Differentially Expressed Genes," Proc. Natl. Acad. Sci., U. S. A., 100:10146-10151, 2003	
	41	"Microarray Explorer Tool for Data Mining Gene Expression Patterns," web page at http://maexplorer.sourceforge.net/ as available via the internet and printed on November 2, 2003	
	42	"My Microarray Software Comparison - Image Analysis Software," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_image.html as available via the internet and printed on November 2, 2003	
	43	"My Microarray Software Comparison - Data Mining Software," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_mining.html as available via the internet and printed on November 2, 2003	
	44	"My Microarray Software Comparison - Data Preprocessing Software," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_preprocess.html as available via the internet and printed on November 2, 2003	
	45	"My Microarray Software Comparison - Statistics Software and Technical Programming Languages," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_statistics.html as available via the internet and printed on November 2, 2003	
	46	"My Microarray Software Comparison," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft.html as available via the internet and printed on November 2, 2003	
	47	"My Microarray Software Comparison – Data Mining Software (Turnkey/Enterprise System)," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_mining_turnkey.html as available via the internet and printed on November 2, 2003	

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	49	"My Microarray Software Comparison – Data Mining Software (Extension of Existing Data Mining Software)," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_mining_extension.html as available via the internet and printed on November 2, 2003	
	50	"My Microarray Software Comparison – Network/pathway Reconstruction and Analysis Software," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_pathway.html as available via the internet and printed on November 2, 2003	
	51	"My Microarray Software Comparison – R Packages for Microarray Analysis," web page at http://ihome.cuhk.edu.hk/~b400559/arraysoft_rpackages.html as available via the internet and printed on November 2, 2003	
	52	Affymetrix web page at http://www.biospace.com/company_profile.cfm?CompanyID=1271 as available via the internet and printed on February 23, 2004	
	53	An IMS Mini-Meeting on Imaging, Classification, and Clustering, Department of Statistics, University of Florida, January 11-12, 2002	
	54	Bioconductor web page at http://www.bioconductor.org/top.html as available via the internet and printed on November 2, 2003	
9	55	BioSieve Products - Microarray Data Analysis Software at http://www.biosieve.com/product.html as available via the internet and printed on November 2, 2003	

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		NON PATENT LITERATURE DOCUMENTS	
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	56	Cluster Analysis on Microarray Data at web page http://www.cs.bufalo.edu/~djiang3/cluster.html as available via the internet and printed on November 10, 2003	
	57	Clustering Software web page at http://genetics.stanford.edu/~sherlock/cluster.html as available via the internet and printed on November 2, 2003	
	58	Cytoscape web page at http://www.cytoscape.org/ as available via the internet and printed on November 2, 2003	
	59	Engene Gene-Expression Data Processing and Exploratory Data Analysis web page at http://www.engene.cnb.uam.es/ as available via the internet and printed on November 2, 2003	
	60	Expression Profiler web page at http://ep.ebi.ac.uk/EP/ as available via the internet and printed on November 2, 2003	
· <u>-</u>	61	FAST-ICA: HUT - CIS web page at http://www.cis.hut.fi/projects/ica/fastica/ as available via the internet and printed on February 16, 2004	
	62	Gene Expression Pattern Analysis Suite (GEPAS) at http://gepas.bioinfo.cnio.es/tools.html as available via the internet and printed on November 2, 2003	
-	63	Gene Network Sciences, Simulating Life for Drug Discovery web page at http://www.gnsbiotech.com/biomine.shtml as available via the internet and printed on November 2, 2003	
	64	Gene Network Sciences, BioMine™ 1.0, web page at http://www.gnsbiotech.com/biomine.shtml as available via the internet and printed on November 2, 2003	
	65	GeneMaths: GenExplore - High Throughput Analysis of Gene Expression Data at http://www.applied-maths.com/ge/ge_fr2.htm as available via the internet and printed on November 2, 2003	

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INFORMATION DISCLOSURE	Application Number	10/812,726	
INFORMATION DISCLOSURE	Filing Date	March 30, 2004	
STATEMENT BY APPLICANT	First Named Inventor	Kayvan Najarian et al.	
	Art Unit	1631	
(Use as many sheets as necessary)	Examiner Name	Zhou, Shubo	
Sheet 8 of 8	Attorney Docket Number	46872-293662 (UNCC 02-031)	

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	66	Genesis Description at http://genome.tugraz.at/Software/Genesis/Description.html as available via the internet and printed on November 2, 2003	
·	67	Genotypic Technology: Genowizard Microarray Data Analysis System web page at http://www.genotypictech.com/genowizard.htm as available via the internet and printed on November 2, 2003	
	68	HumanaNow, "Statistical Issues in cDNA Microarray Data Analysis," web page at http://biomed.humanapress.com/ChapterDetail.pasp?isbn=1-59259-364-X&ccode=1-5925 as available via the internet and printed on November 2, 2003	
	69	IFMBE News: September 2002 web page at http://ifmbe-news.iee.org/ifmbe-news/sept2002/bucolo.html as available via the internet and printed on November 10, 2003	
	70	MPI Swarm Description http://genome.tugraz.at/Software/PathwayEditor/Description.html as available via the internet and printed on November 2, 2003	
	71	Partek Pattern Recognition Software web page at http://www.partek.com/html/products/products.html as available via the internet and printed on November 2, 2003	
	72	Rosetta Features web page at http://rosetta.lcb.uu.se/general/features.html as available via the internet and printed on November 2, 2003	
	73	SAS, web page at http://www.sas.com/contact/intro.html as available via the internet and printed on February 16, 2004	
	74	Silicon Genetics Products: GeneSpring; The Industry Leader web page at http://www.silicongenetics.com/cgi/SiG.cgi/Products/GeneSpring/index.smf as available via the internet and printed on November 2, 2003	
	75	The MathWorks, web page at http://www.mathworks.com/company/contact.shtml as available via the internet and printed on February 16, 2004	

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